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10/691,271	10/21/2003	Wan Gyo Jeong	SUN0030US	4943

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EXAMINER	
BECKLEY, JONATHAN R	

ART UNIT	PAPER NUMBER
2625	

NOTIFICATION DATE	DELIVERY MODE
07/07/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/691,271	JEONG, WAN GYO	
	Examiner	Art Unit	
	JONATHAN R. BECKLEY	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 March 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10/21/2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *none*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1, 4 and 9 have been considered but are moot in view of the new ground(s) of rejection. A new rejection has been made under 35 U.S.C. 102(e) as being anticipated by Smith (US Patent 6,476,970), regarding claims 1, 3, 4, 5, 8 and 10; and a new rejections has been made under 35 U.S.C. 103(a) as being unpatentable over obviousness by Smith (US Patent 6,476,970), regarding claims 2, 6, 7 and 9. This action is made Non-Final.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. **Claims 1, 3, 4, 5, 8, 10 and 11** are **rejected** under **35 U.S.C. 102(e)** as being anticipated by **Smith (US Patent 6,476,970)**, herein "Smith".

Regarding **Claim1, Smith** teaches an optical image detector that illuminates incident lights on a surface of an object **(optical navigation device, Column 3, lines 29-50; See Figure 1)**, the optical image detector comprising:

a single light source **(illumination source / LED; Column 3, lines 34-36; Column 4, lines 6-11)**; and

an incident light generator **(collimating unit)** comprising a plurality of reflecting plates **(beam-splitting roofs / reflecting surfaces; See Figure 8)** configured to receive a light from the single light source and to generate at least two groups of incident lights **(Column 4, lines 6-11; Noted: receives light from the source, and produces collimated light beams)** having different incident angles with respect to the surface of the object **(Column 4, lines 45-51; Noted: as the collimated beam is being re-directed, the wave from of the beam can be split into multiple beams by using reflecting surfaces...so as to direct several sub-beams onto a common area at slightly different angles of incidence)**, the incident lights directed toward the object to generate an image for surface morphology of the object **(Column 3, lines 36-40; Noted: the beams are incidence beams which are used to retrieve an image of the area. It is understood in the art that incidence beams are beams directed towards a surface, there being the unit receiving the beams are capturing an image of the surface)**.

Regarding **Claim 3, Smith** discloses further comprising an optical sensor **(camera optics; Column 36-40; See Figure 1)** that is disposed over the surface of the object **(camera optics 118 over the illumination area 128; See Figure 1)** to sense the lights reflected from the surface of the object, wherein the optical sensor converts an

image for the surface morphology of the object into photocurrents **(Column 3, lines 31-40)**.

Regarding **Claim 4, Smith** teaches a navigation device object **(optical navigation device, Column 3, lines 29-50; See Figure 1)** comprising:

a case including a lower panel having an opening **(See Figure 1; Noted: not directly discussed in the specification, but shown in Figure 1 and understood in the invention from the light reaching the surface)**;

a single light source installed in the case **(illumination source / LED; Column 3, lines 34-36; Column 4, lines 6-11)**; and

an incident light generator **(collimating unit)** disposed adjacent to the single light source and comprising a plurality of reflecting plates **(beam-splitting roofs / reflecting surfaces; See Figure 8)** configured to receive a light from the single light source and to generate at least two groups of incident lights **(Column 4, lines 6-11; Noted: receives light from the source, and produces collimated light beams)** having different incident angles with respect to a surface of an object **(Column 4, lines 45-51; Noted: as the collimated beam is being re-directed, the wave from of the beam can be split into multiple beams by using reflecting surfaces...so as to direct several sub-beams onto a common area at slightly different angles of incidence)**, wherein the incident lights are illuminated on the surface of the object through the opening **(Column 3, lines 36-40; See Figure 1; Noted: the beams are incidence beams which are used to retrieve an image of the area. It is understood in the art that**

incidence beams are beams directed towards a surface, there being the unit receiving the beams are capturing an image of the surface).

Regarding **Claim 5, Smith** discloses wherein the single light source is a light emitting device that generates infrared or visual spectrum rays **(Column 4, lines 6-15; and Column 4, lines 61 – Column 5, lines 4)**.

Regarding **Claim 8, Smith** discloses further comprising an optical sensor **(camera optics; Column 36-40; See Figure 1)** that is disposed over the surface of the object **(camera optics 118 over the illumination area 128; See Figure 1)** to sense the lights reflected from the surface of the object, wherein the optical sensor converts an image for the surface morphology of the object into photocurrents **(Column 3, lines 31-40)**.

Regarding **Claim 10, Smith** discloses wherein the at least two groups of incident lights comprise a plurality of first incident lights being parallel to each other and a plurality of second incident lights being parallel to each other **(Column 4, lines 61 – Column 5, lines 15; See Figure 3; Noted: different groups of beams are parallel with each other and also different in angles from other groups)**.

Regarding **Claim 11, Smith** wherein the first incident lights and the second incident lights cross each other **(Column 5, lines 66 – Column 6, lines 12; See Figures 3 and 11 for drawings of beams crossing each other at different angles)**.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. **Claims 2, 6-7 and 9** are rejected under **35 U.S.C. 103(a)** as being unpatentable over obviousness by **Smith (US Patent 6,476,970)**, herein "Smith".

Regarding **Claim 2, Smith** discloses wherein the incident light generator comprises:

a first reflecting plate **(upper portion of beam splitting roof 218; See Figures 2 and 3)** reflecting the lights of the single light source to generate a first group of incident lights having a first incident angle with respect to the surface of the object **(Column 43-60; See Figures 2 and 3)**;

a second reflecting plate **(lower portion of beam splitting roof 218; See Figures 2 and 3)** reflecting the lights of the single light source to generate a second

group of incident lights having a second incident angle greater than the first incident angle with respect to the surface of the object **(Column 43-60; See Figures 2 and 3);** .

Smith does not directly disclose wherein the incident light generator comprises:

a third reflecting plate reflecting the lights of the single light source to generate a third group of incident lights having a third incident angle greater than the second incident angle with respect to the surface of the object.

Smith does disclose in another embodiment of the invention wherein the incident light generator comprises:

a third reflecting plate reflecting the lights of the single light source to generate a third group of incident lights having a third incident angle greater than the second incident angle with respect to the surface of the object **(Column 6, lines 40-47; See Figure 9; The vertically splitting reflecting plate is given a third reflecting surface to produce a plurality of beam groups)**.

Smith's embodiments are combinable because the second embodiment is a design choice of the user or designer of the invention to alter the main invention of Smith.

Therefore, it would have been obvious to one skilled in the art at the time of the invention to modify the teachings of Smith with the other embodiments of Smith so to produces more groups of light beams when splitting the light source in the collimating unit as an alternative for performing the same functions of the invention of Smith. (Column 6, lines 48-57).

Regarding **Claim 6, Smith** discloses wherein the at least two groups of incident lights comprises:

a first group of incident lights having a first incident angle with respect to the surface of the object **(beams produced from upper portion of beam splitting roof 218; Column 43-60; See Figures 2 and 3; See Figures 2 and 3)**;

a second group of incident lights having a second incident angle greater than the first incident angle with respect to the surface of the object **(beams produced from lower portion of beam splitting roof 218; Column 43-60; See Figures 2 and 3; See Figures 2 and 3)**.

Smith does not directly disclose wherein the at least two groups of incident lights comprises:

a third group of incident lights having a third incident angle greater than the second incident angle with respect to the surface of the object.

Smith does disclose in another embodiment of the invention wherein the at least two groups of incident lights comprises:

a third group of incident lights having a third incident angle greater than the second incident angle with respect to the surface of the object **(Column 6, lines 40-47; See Figure 9; The vertically splitting reflecting plate is given a third reflecting surface to produce a plurality of beam groups)**.

Smith's embodiments are combinable because the second embodiment is a design choice of the user or designer of the invention to alter the main invention of Smith.

Therefore, it would have been obvious to one skilled in the art at the time of the invention to modify the teachings of Smith with the other embodiments of Smith so to produces more groups of light beams when splitting the light source in the collimating unit as an alternative for performing the same functions of the invention of Smith. (Column 6, lines 48-57).

Regarding **Claim 7, Smith** discloses wherein the reflecting plates further comprise:

a first reflecting plate reflecting the lights of the single light source to generate the first group of incident lights **(upper portion of beam splitting roof 218; Column 43-60; See Figures 2 and 3; See Figures 2 and 3)**;

a second reflecting plate reflecting the lights of the single light source to generate the second group of incident lights **(lower portion of beam splitting roof 218; Column 43-60; See Figures 2 and 3; See Figures 2 and 3)**.

Smith does not directly disclose wherein the reflecting plates further comprise:

a third reflecting plate reflecting the lights of the single light source to generate the third group of incident lights.

Smith does disclose in another embodiment of the invention wherein the reflecting plates further comprise:

a third reflecting plate reflecting the lights of the single light source to generate the third group of incident lights **(Column 6, lines 40-47; See Figure 9; The vertically**

splitting reflecting plate is given a third reflecting surface to produce a plurality of beam groups).

Smith's embodiments are combinable because the second embodiment is a design choice of the user or designer of the invention to alter the main invention of Smith.

Therefore, it would have been obvious to one skilled in the art at the time of the invention to modify the teachings of Smith with the other embodiments of Smith so to produces more groups of light beams when splitting the light source in the collimating unit as an alternative for performing the same functions of the invention of Smith. (Column 6, lines 48-57).

Regarding **Claim 9, Smith** teaches an optical image detector which illuminates incident lights on a surface of an object to generate an image corresponding to a surface morphology of the object **(optical navigation device, Column 3, lines 29-50; See Figure 1)**, the optical image detector comprising:

a single light source generating a first light **(See Figure 1; Noted: not directly discussed in the specification, but shown in Figure 1 and understood in the invention from the light reaching the surface)**;

and an incident light generator **(collimating unit)** configured to reflect the first light to generate at least two groups of incident lights **(Column 4, lines 6-11; Noted: receives light from the source, and produces collimated light beams)** having

different incident angles with respect to the surface of the object, and then illuminated on the surface of the object **(Column 4, lines 45-51; Noted: as the collimated beam is being re-directed, the wave from of the beam can be split into multiple beams by using reflecting surfaces…so as to direct several sub-beams onto a common area at slightly different angles of incidence Noted: the beams are incidence beams which are used to retrieve an image of the area. It is understood in the art that incidence beams are beams directed towards a surface, there being the unit receiving the beams are capturing an image of the surface.)**; and,

wherein the incident light generator comprises:

a first reflecting plate **(upper portion of beam splitting roof 218; See Figures 2 and 3)** configured to reflect the first light to generate a first group of incident lights having a first incident angle with respect to the surface of the object **(Column 43-60; See Figures 2 and 3)**;

a second reflecting plate **(lower portion of beam splitting roof 218; See Figures 2 and 3)** configured to reflect the lights of the single light source to generate a second group of incident lights having a second incident angle greater than the first incident angle with respect to the surface of the object **(Column 43-60; See Figures 2 and 3)**.

Smith does not directly disclose wherein the optical image detector comprising:

the incident light generator comprises:

a third reflecting plate configured to reflect the lights of the single light source to generate a third group of incident lights having a third incident angle

greater than the second incident angle with respect to the surface of the object.

Smith does disclose in another embodiment of the invention wherein the optical image detector comprising:

the incident light generator comprises:

a third reflecting plate configured to reflect the lights of the single light source to generate a third group of incident lights having a third incident angle greater than the second incident angle with respect to the surface of the object. **(Column 6, lines 40-47; See Figure 9; The vertically splitting reflecting plate is given a third reflecting surface to produce a plurality of beam groups)**.

Smith's embodiments are combinable because the second embodiment is a design choice of the user or designer of the invention to alter the main invention of Smith.

Therefore, it would have been obvious to one skilled in the art at the time of the invention to modify the teachings of Smith with the other embodiments of Smith so to produces more groups of light beams when splitting the light source in the collimating unit as an alternative for performing the same functions of the invention of Smith. (Column 6, lines 48-57).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JONATHAN R. BECKLEY whose telephone number is

(571)270-3432. The examiner can normally be reached on Mon-Fri: 7:30-5:00 EST (Alternate Friday).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, TWYLER L. HASKINS can be reached on (571)272-7406. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jonathan R Beckley/
Examiner, Art Unit 2625
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